

Claim Listing This listing of claims will replace all prior versions and listings of claims in the application:

1. (currently amended) A DNA expression construct comprising, ~~in expressible form~~, a nucleic acid sequence which encodes a mutant Δ^9 -18:0-ACP desaturase having one or more amino acid substitutions selected from the group consisting of:

- a) Ala, Thr, Ser, or Ile at the residue homologous to for Met 114 of SEQ ID NO: 1;
- b) Arg at the residue homologous to for Thr 117 of SEQ ID NO: 1;
- 10 c) Gly, Ala or Cys at the residue homologous to for Leu 118 of SEQ ID NO: 1;
- d) Val or Leu at the residue homologous to for Pro 179 of SEQ ID NO: 1;
- e) Val, Ser, Phe or Trp at the residue homologous to for Thr 181 of SEQ ID NO: 1; and
- f) Leu or Thr at the residue homologous to for Gly 188 of SEQ ID NO: 1.

2. (currently amended) The DNA expression construct of Claim 1 in which the nucleic acid sequence encodes each of the following amino acid substitutions:

- a) Ala at the residue homologous to for Met 114 of SEQ ID NO: 1;
- b) Arg at the residue homologous to for Thr 117 of SEQ ID NO: 1;
- c) Gly at the residue homologous to for Leu 118 of SEQ ID NO: 1;
- 10 d) Val at the residue homologous to for Pro 179 of SEQ ID NO: 1;
- e) Val at the residue homologous to for Thr 181 of SEQ ID NO: 1; and
- f) Leu at the residue homologous to for Gly 188 of SEQ ID NO: 1.

3. (currently amended) The DNA expression construct of Claim 1 in which the nucleic acid sequence encodes each of the following amino acid substitutions:

- a) Thr at the residue homologous to for Met 114 of SEQ ID NO: 1;
- b) Arg at the residue homologous to for Thr 117 of SEQ ID NO: 1;

c) ~~Ala at the residue homologous to~~ for Leu 118 of
SEQ ID NO: 1;

10 d) ~~Leu at the residue homologous to~~ for Pro 179 of
SEQ ID NO: 1;

e) ~~Ser at the residue homologous to~~ for Thr 181 of
SEQ ID NO: 1; and

f) ~~Leu at the residue homologous to~~ for Gly 188 of
SEQ ID NO: 1.

4. (currently amended) The DNA expression construct
of Claim 1 in which the nucleic acid sequence encodes each
of the following amino acid substitutions:

20 a) ~~Ser at the residue homologous to~~ for Met 114 of
SEQ ID NO: 1;

b) ~~Arg at the residue homologous to~~ for Thr 117 of
SEQ ID NO: 1;

c) ~~Cys at the residue homologous to~~ for Leu 118 of
SEQ ID NO: 1;

d) ~~Leu at the residue homologous to~~ for Pro 179 of
SEQ ID NO: 1; and

e) ~~Thr at the residue homologous to~~ for Gly 188 of
SEQ ID NO: 1.

5. (currently amended) The DNA expression construct of Claim 1 in which the nucleic acid sequence encodes the amino acid substitutions Arg ~~at the residue homologous to~~ for Thr 117 and Leu ~~at the residue homologous to~~ for Gly 188, each of SEQ ID NO: 1.

6. (currently amended) The DNA expression construct of Claim 1 in which the nucleic acid sequence encodes the amino acid substitution Arg ~~at the residue homologous to~~ for Thr 117 of SEQ ID NO: 1.

7. (currently amended) The DNA expression construct of Claim 1 in which the nucleic acid sequence encodes the amino acid substitution Phe ~~at the residue homologous to~~ for Thr 181 of SEQ ID NO: 1.

8. (currently amended) The DNA expression construct of Claim 1 in which the nucleic acid sequence encodes the amino acid substitution Trp ~~at the residue homologous to~~ for Thr 181 of SEQ ID NO: 1.

9. (currently amended) The DNA expression construct of Claim 1 in which the nucleic acid sequence encodes the amino acid substitutions Ile ~~at the residue homologous to~~ for Met 114 and Leu ~~at the residue homologous to~~ for Gly 188 of SEQ ID NO: 1.

10. (original) The DNA expression construct of any one of Claims 1, 2, 3, 4, 5, 6, 7, 8, or 9 wherein the nucleic acid sequence is selected from the Δ^9 -18:0-ACP desaturase sequences from a member of the group consisting of castor, brassica, sunflower, yellow lupine, cotton, coriander, maize, sesame, rice, flax, safflower, avocado and cucumber.

11. - 17. (cancelled)

18. - 53. (cancelled)

54. (new) A DNA expression construct comprising a nucleic acid sequence which encodes a mutant Δ^9 -18:0-ACP desaturase selected from the group consisting of

a. a mutant having each of the following amino acid substitutions: Ala for Met 114; Arg for Thr 117; Gly for Leu 118; Val for Pro 179; Val for Thr 181 and Leu for Gly 188, all of SEQ ID NO: 1;

b. a mutant having each of the following amino acid substitutions: Thr for Met 114; Arg for Thr 117; Ala for Leu 118; Leu for Pro 179; Ser for Thr 181 and Leu for Gly 188, all of SEQ ID NO: 1;

c. a mutant having each of the following amino acid substitutions: Ser for Met 114; Arg for Thr 117; Cys for

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Leu 118; Leu for Pro 179; and Thr for Gly 188, all of SEQ ID NO: 1;

d. a mutant in which Arg is substituted for Thr 117 and Leu for Gly 188, each of SEQ ID NO: 1;

e. a mutant in which Ile is substituted for Met 114 and Leu is substituted for Gly 188, each of SEQ ID NO: 1;

20 f. a mutant in which Arg is substituted for Thr 117 of SEQ ID NO: 1;

g. a mutant in which Phe is substituted for Thr 181 of SEQ ID NO: 1; and

h. a mutant in which Trp is substituted for Thr 181 of SEQ ID NO: 1.

55. (new) The DNA expression construct of Claim 54 wherein the nucleic acid sequence is selected from the Δ^9 -18:0-ACP desaturase sequence from a member of the group consisting of castor, brassica, sunflower, yellow lupine, cotton, coriander, maize, sesame, rice, flax, safflower, avocado and cucumber.

56. (new) A cell transformed with a DNA expression construct selected from the group consisting of the DNA expression constructs of Claim 54.

57. (new) The cell of Claim 56 which is a prokaryotic cell.

58. (new) The cell of Claim 56 which is an eukaryotic cell.

59. (new) The cell of Claim 58 which is a plant cell.

60. (new) A transgenic plant expressing a DNA construct selected from the group consisting of the DNA constructs of Claim 54.

61. (new) The transgenic plant of Claim 60 which is *Arabidopsis thaliana*.

62. (new) The transgenic plant of Claim 61 which is selected from the group consisting of castor, brassica, sunflower, yellow lupine, cotton, coriander, maize, sesame, rice, flax, safflower, avocado and cucumber.